WHAT IS CLAIMED IS:

1. A heat exchanger comprising:

(a) a base member of thermoplastics material having an upper surface and a lower surface;

(b) at least one of,

(i) an upper sheet of thermoplastics material superposed over said upper surface of said base member, and

(ii) a lower sheet of thermoplastics material superposed over said lower surface of said base member;

(c) an inlet pipe, which provides an inlet for a heat transfer medium into said heat exchanger; and

(d) an outlet pipe which provides an outlet for said heat transfer medium from said heat exchanger;

wherein at least one of, (i) at least one of said upper surface of said base member and said upper sheet has a channel therein, the upper surface of said base member and said upper sheet together defining an upper conduit, and

(ii) at least one of said lower surface of said base member and said lower sheet has a channel therein, the lower surface of said base member and said lower sheet together defining a lower conduit, and

further wherein said inlet pipe and said outlet pipe are in fluid communication with at least one of said upper conduit and said lower conduit.

2. The heat exchanger of Claim 1 wherein said heat exchanger includes both of said upper conduit and said lower conduit, and said base member has at least one aperture therethrough which provides fluid communication between said upper and lower conduits; said upper conduit, said lower conduit and said aperture together forming a

continuous conduit through said heat exchanger; and said inlet pipe and said outlet pipe each being in fluid communication with said continuous conduit.

3. The heat exchanger of Claim 1 wherein said upper and lower conduits each independently have a cross-sectional area of 1 to 500 mm^2.

4. The heat exchanger of Claim 2 wherein said continuous conduit has a cross-sectional area of 1 to 500 mm^2.

5. The heat exchanger of Claim 1 wherein said upper and lower thermoplastic sheets each independently have a thickness of 0.05 to 1.5 mm.

6. The heat exchanger of Claim 1 wherein the thermoplastic material of each of said base member, said upper sheet and said lower sheet is selected independently from at least one of polyamide polycarbonate, polyalkylene terephthalate, acrylonitrile/ butadiene / styrene copolymer, polyethylene, polypropylene, polytetrafluoroethylene, thermoplastic polyurethane, polyvinylidene fluoride and thermoplastic elastomer.

7. The heat exchanger of Claim 1 wherein said inlet pipe and said outlet pipe are each continuous with said base member.

8. The heat exchanger of Claim 1 wherein said base member and said upper and lower sheets are fixedly joined together by means of laser welding.

9. The heat exchanger of Claim 1 wherein said base member is planar.

10. A method of preparing the heat exchanger of Claim 1 comprising:

(a) forming said base member by means of injection molding;

(b) forming each of said upper and lower sheets by means of vacuum forming;

(c) contacting at least one of,

(i) said upper sheet with the upper surface of said base member, and

(ii) said lower sheet with the lower surface of said base member; and

(d) fixedly joining at least one of said upper sheet and said lower sheet to said base member by means of laser welding.

11. A method of preparing the heat exchanger of Claim 2 comprising:

(a) forming said base member by means of injection molding;

(b) forming each of said upper and lower sheets by means of vacuum forming;

(c) contacting

(i) said upper sheet with the upper surface of said base member, and

(ii) said lower sheet with the lower surface of said base member, and

(d) fixedly joining said upper sheet and said lower sheet to said base member by means of laser welding.